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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,919	04/12/2007	Jan Hall	NOBELB.243NP	9222

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EXAMINER	
MAI, HAO D	

ART UNIT	PAPER NUMBER
3732	

NOTIFICATION DATE	DELIVERY MODE
03/03/2011	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/582,919	HALL, JAN	
	Examiner	Art Unit	
	HAO D. MAI	3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-10,12 and 14-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,7-10,12 and 14-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/16/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. **Claims 1-2, 4-5, 7-10, 12, 14-17, and 19, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross (4,744,754) in view of Bergman (4,723,913) and Ricci et al. (6,419,491)**

Regarding claim 1, Ross discloses a dental implant 10 (Figs. 1-2) capable of being inserted into a hole formed in the jaw bone and overlying soft tissue, the dental implant comprising an upper portion capable of being placed against an upper edge of the jaw bone 60 (Figs. 1-2). The upper portion comprises at least one groove 34 which extends all around an outer surface of the upper portion to form a closed loop and which extends substantially in a cross section substantially at right angles (i.e. perpendicular) to the longitudinal axis of the implant (Figs. 1-3; column 4 lines 66-column 5 lines 16).

Ross discloses the invention substantially as claimed except for the ranges for the depth and width of the groove 34. Bergman discloses a dental implant 2 (Figs. 1-5) having circumferential grooves 14 at the upper portion of the implant, wherein each groove 14 has a depth of about 10-120 microns and a width of about 10-100 microns (abstract; column 1 lines 61-64; column 2 lines 47-48), which overlap the claimed ranges of the groove's depth and width. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ross by making the closed-loop circumferential groove 34 with a depth and a

width within the respective ranges as taught by Bergman in order to optimize osseointegration of the implant to the bone tissue. Note that both Ross's and Bergman's circumferential grooves are for bone growth and osseointegration at the upper portion of the implant, preventing "saucerization" or growth of soft tissues between the implant and bone tissue (Ross: Fig. 12 column 1 lines 38-49, column 6 lines 45-48; Bergman: abstract, column 1 lines 12-15, 26-35), solving the same pertinent problem which Applicant is concerned. Also note that the above modification of ranges of dimensions would have been well within the skill of an artisan since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller,* 105 USPQ 233.

As to claims 2 and 4-5, such claimed shapes of cup-shape (claim 1), semi-circular, semi-elliptical, and rectangular with rounded corners, for the groove's cross section are well known as shown by Ricci et al. (Figs. 7-14). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make Ross's groove having a cross section with such claimed shapes (column 4 lines 42-50) in order to optimize osseointegration as explicitly taught by Ricci et al. **As to claims 7-8**, note that the recitations about "the ingrowth of bone" and "bone ingrowth) are not actively claimed, i.e. such "ingrowth of bone" or "bone ingrowth" are not being claimed as a limitation of the invention; and therefore is not given patentable weight. Also, such recitation conveys functional limitation, which Ross/Bergman's device is capable of performing. **As to claims 9-10**, Ricci shows the groove 34 below rib 36A is located at an upper part of the upper portion; and the implant further include other coordinating grooves, e.g. grooves between ribs 50. **As to claims 12 and 14,** the claimed ranges of depth of about 70 μm and width of about 110 μm would have been obvious in view of Bergman's disclosed ranges as reasoned above with respect to claim 1. **As to claim 16**, Ross' groove 34

extends in a continuous groove around the outer surface of the implant's upper portion. **As to claims 15, 17 and 19**, the method of providing the dental implant and installing the implant into a jaw bone comprising the recited steps are naturally carried out when using the dental implant as disclosed by Ross in view of Bergman and Ricci. Note Figures 4-5 of Ross show the position of the implant and groove within the jaw bone as claimed.

3. **Claim 3 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ross in view of Bergman and Ricci, according to claim 1 and 15, and further in view of Cottrell (2004/0142304 A1).**

Ross/Bergman/Ricci disclose the invention substantially as claimed according to claim 1 as detailed above. However, Ross/Bergman/Ricci fail to disclose the groove having an arc-shape that follows a corresponding arc-shaped jaw bone. Cottrell disclose a dental implant having threads/grooves 46b at an upper portion 50 (Fig. 6), wherein in one embodiment, the grooves 46b has an arc-shape that follows a corresponding arc-shaped jaw bone, i.e. coronal contour (Fig. 12; paragraph 57). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Ross/Bergman/Ricci by making the groovehaving an arc-shape that follows a corresponding arc-shaped jaw bone in order to aid in bone preservation and coronal bone apposition as explicitly taught by Cottrell.

Response to Arguments

4. Applicant's arguments regarding the rejection(s) of the claim(s) under Stevens/Hansson have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Ross, Bergman, Ricci, and Cotrell, as detailed above.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to HAO D. MAI whose telephone number is (571)270-3002. The examiner can normally be reached on Monday-Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cris Rodriguez can be reached on (571) 272-4964. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hao D Mai/
Examiner, Art Unit 3732

/Cris L. Rodriguez/
Supervisory Patent Examiner, Art Unit 3732